

## Mixed Word Equations

**For each of the following reactions, write a BALANCED equation, coefficients should be in terms of lowest whole numbers.** Assume that solutions are aqueous unless otherwise indicated. Represent substances in solutions as ions if the substances are extensively ionized. **Omit formulas for any ions or molecules that are unchanged by the reaction.**

- a) Manganese (II) nitrate solution is mixed with sodium hydroxide solution.
- b) Equal volumes of dilute equimolar solutions of sodium carbonate and hydrochloric acid are mixed.
- c) An excess of sodium hydroxide solution is added to a solution of aluminum chloride.
- d) Dilute acetic acid solution is added to solid magnesium carbonate.
- e) The hydrocarbon hexane is burned in excess oxygen.
- f) Equimolar amounts of trisodium phosphate and hydrogen chloride, both in solution, are mixed.
- g) Iron (III) nitrate solution is mixed with potassium thiocyanate solution
- h) Metallic copper is heated with concentrated nitric acid.
- i) Manganese (IV) oxide is added to warm, concentrated hydrobromic acid.
- j) Hydrogen peroxide is added to an acidified solution of potassium dichromate.
- k) Calcium metal is added to a dilute solution of hydrochloric acid.
- l) A solution of sulfuric acid is added to a solution of sodium hydroxide until the same number of moles of each compound has been added.
- m) Sulfur dioxide gas is bubble through an acidified solution of potassium permanganate.
- n) A solution of sodium hydroxide is added to a solution of sodium dihydrogen phosphate until the same number of moles of each compound had been added.
- o) A solution containing tin (II) ions is added to an acidified solution of potassium dichromate.
- p) A solution of ammonia is added to ferric nitrate.
- q) A solution of concentrated hydrochloric acid is added to silver chloride forming a complex ion.
- r) Chlorine gas is bubbled into dilute sodium hydroxide solution.
- s) A solution of tin (II) chloride is added to acidified solution of potassium permanganate.